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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,609	11/15/2000	Sanjive Agarwala	TI-28977	5265
23494	7590	03/11/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			LEE, CHI HO A	
			ART UNIT	PAPER NUMBER
			2663	3

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/713,609

Applicant(s)

AGARWALA ET AL.

Examiner

Andrew Lee

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6 and 9 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5, 8 and 9 are objected to because of the following informalities:

Claim 5, line 5, "has" should be deleted and ";" should be inserted after "empty" in line 6. Claims 8 and 9 should not on itself. Claim 8 should depend on Claim 7 and Claim 9 appears to depend of Claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "said originating transfer request node" in line 5.

There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1, 6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Bauman et al U.S. Patent Number 6,160,812.

Re Claim 1, fig. 8 teaches a scheduler 132 (a centralized data transfer unit) for receiving packet requests (transfer request packet) wherein each packet indicates a priority level wherein the request packet (a desired data transfer) inherently indicates a desired data transfer (See col. 10, lines 8-25<sup>8</sup>); fig. 7 teaches Channel Module for supplying new requests to the Scheduler 132 that includes request buffers 122-128 for storing each received packet requests into one of the plurality of priority levels in FIFO manner (See col. 8, lines 1-44); fig.8 teaches Mack Compare Unit 172 within the Scheduler 132 for determining (detecting) availability of free channel among other channels (See col. 11, lines 10-46 & abstract); further teaches that the target output channels of requests to the scheduler are identified and compared to the target output channels of requests that are included in a queue of next-in-line requests (a next transfer packet request), the queue of next-in-line request is reviewed and the highest priority request having no conflicting output channels is supplied to the scheduler for dispatching.

Re Claim 6, refer to Claim 1, wherein fig. 5 teaches plurality of Channel Modules (a plurality of transfer request nodes) for transferring (generating) packet requests to the scheduler 132; upon dispatching of a transfer request packet to a free data transfer channel, the Channel modules transmits a DONE\_CHN (a queue acknowledgement) to the Scheduler 132 (See col. 9, lines 18-39).

Re Claim 9, fig. 5 teaches a number of channel equaling the number of priority level, in particular, I/O controller 242 has one channel 292 associated with one priority queue 252.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 3, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauman et al U.S. Patent Number 6,160,812 in view of Colmant et al U.S. Patent Number 5,519,701.

Re Claim 2, Bauman teaches a request buffer 128 can store M requests in 160, 162, 164, 166 registers wherein each register (defining an address range of M) is associated with a priority level (See col. 8, line 1-14). Bauman fails to teach "storing each received request...in a random access memory fashion" and "storing a next input transfer request packet" corresponding to a queue write and read pointer. However, Colmant teaches a RAM for providing a read and write pointer set for providing an efficient queue management algorithm (See col. 3, lines 15-56). In particular, the computation increments the memory address, calculates the limits which is the value of the top of the queue which is compared with the incremented memory address to control the base pointer into read/write pointer array. By implementing the teaching of Colmant into the Channel module of Bauman, an efficient queue management would

have been facilitated whereby the corresponding queue read/write pointer would have indicated availability in the queue to minimize blockage. Hence, one skilled in the art would have been motivated to include RAM and read/write pointers Colmant into the buffer of Bauman et al for efficient data transfer and queue management.

Re Claim 3, refer to Claim 2, wherein incrementing and decrementing corresponding read/write pointer is an inherent feature in queue management. By incrementing and decrementing the pointer address in relation with the base pointer for each queue, availability of the queue is realized.

***Allowable Subject Matter***

8. Claims 4, 5, 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In combination with Claims 1 and 5, prior art fails to teach if a received transfer request packet of a priority level is detected to be empty; bypassing storing said transfer request packet in queue memory and dispatching transfer request packet directly to the corresponding free data transfer channel.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lee whose telephone number is 703-305-1500. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AI  
3/3/04

ANDY LEE  
PATENT EXAMINER